

Catalytic dehydrogenation ...

S/595/60/000/000/009/014
E134/E485

conversion to isoprene. Results with mixtures obtained by dehydrogenation of isopentane over an Al-Cr catalyst were similar to those with synthetic mixtures. Full analysis showing effect of flow rate and temperature is given. The degree of conversion decreases with increasing flow rate. The kinetics of the reaction were investigated in the 530 to 580°C range with a steam dilution ratio of 1:2 and hourly flow rates of 5200 to 7000 g/litre catalyst/hour. Reaction rate is given by equation of the following type

$$\frac{dx}{dx} K \frac{|A_1|}{[A_1] + z_1 [A_2] + z_2 [A_3]} \quad (1)$$

The adsorption coefficients z were determined experimentally by measuring the rate of dehydrogenation of binary mixtures of the starting material and the reaction products and were calculated from

$$z_1 = \frac{\frac{m_0 - 1}{m}}{\frac{100}{p} - 1} \quad (2)$$

Card 3/14

Catalytic dehydrogenation ...

S/595/60/000/000/009/014
E134/E435

where m_0 - number of mols of reaction product for feed of pure starting material; m - number of mols of reaction product for feed of mixture; p - percent of reacting material in initial mixture. The hydrogen adsorption coefficients remained constant at 0.83. The isoprene adsorption coefficients dropped from 5.7 to 2.8 (z_2) between 530 and 580°C. The reaction rates were calculated using the adsorption coefficients and the plot of $\log K$ against the reciprocal of the absolute temperature gave a straight line. The activation energy was calculated as 23300 calories/molecule. The mixtures used in the tests were produced in the laboratory of Academician B.A.Kazanskiy and Corresponding Member N.I.Shuykin. There are 3 figures, 4 tables and 6 references: 2 Soviet-bloc and 4 non-Soviet-bloc. The four references to English language publications read as follows: Ref.3: US Patent 2440471, 1948; C.A.42, 54 4, 1948; Ref.4: US Patent 2442319, 1948; C.A.42, 6106, 1948; Ref.5: Grosse A., Morell J.C., Mavity J.M. Industr. Engng. Chem. 32, 309, 1940; Ref.6: Mavity J.M., Zetterholm E.E. Trans. Am. Inst. Chem. Engrs., 40, 1944, 473.

Card 4/8 4

S/595/60/000/000/G10/014
E075/E435

AUTHORS: ~~Bogdanova, O.K.~~, Balandin, A.A., Baryshnikova, I.P.
TITLE: Dehydrogenation kinetics of ethyl benzene to styrene
and isopropyl benzene to α -methylstyrene
SOURCE: Vsesoyuznoye soveshchaniye po khimicheskoy
pererabotke neftyanykh uglevodorodov v poluprodukty
dlya sinteza volokon i plasticheskikh mass. Baku, 1957.
Baku, Izd-vo AN Azerb. SSR, 1960, 241-247

TEXT: The object of the work is a study of the kinetics of
dehydrogenation of ethyl and isopropyl benzene; it is a
continuation of the authors' investigations on the effect of
molecular structure on dehydrogenation kinetics. The
experimental work was carried out by passage through an
electrically heated glass tube containing an oxide catalyst on a
screen, at atmospheric pressure. Dilution ratios of 1:3 to 5
and 1:2 were used for ethyl and propyl benzene respectively;
the steam was superheated to 300°C. Liquid and gaseous product
fractions were analysed and good agreement between hydrogen and
unsaturated hydrocarbons was found. The kinetics of isopropyl
benzene dehydrogenation were studied at three feed rates in the
Card 1/4

S/595/60/000/000/010/014
E075/E435

Dehydrogenation kinetics'...

temperature range of 500 to 550°C, rate being measured by the hydrogen produced. A table of reaction product analysis is given. Under identical conditions the dehydrogenation rate of binary mixtures of isopropyl benzene and its reaction product, α-methylstyrene, were studied to obtain adsorption coefficients on the catalyst from

$$z = \frac{m_0/m - 1}{100 - 1} \quad (1)$$

where m_0 = number of moles reaction product for feed of pure starting material; m = number of moles reaction product for feed of mixture; p = % of starting material in mixture. The relative adsorption coefficient of hydrogen was found to be 0.7 and was independent of temperature. The relative adsorption coefficient of α-methylstyrene falls with temperature, a table and graph are given. Plotting the log of the adsorption coefficient against the reciprocal of the absolute temperature gives a straight line. The reaction rate was calculated by using the general equation for catalytic reactions derived by A.A.Balandin (Ref.2: Card 2/4

Dehydrogenation kinetics ...

S/595/60/000/000/010/014
E075/E435

ZhOKh, 1942, 12, 156)

$$[2,303(z_1+z_3)A_1] \lg \frac{A_1}{A_1-m} - m(z_1+z_3-1) = -K \quad (2)$$

The calculated reaction rate has been plotted against the reciprocal of the absolute temperature and the points lie on a straight line. The activation energy has been calculated as 30.3 Kcals/mol. A series of experiments with catalyst particles varying in size from 1.5 to 5 mm was carried out; particle size had no effect on reaction rate. The dehydrogenation of ethyl benzene was studied in the range of 520 to 560°C. The results were similar to those obtained with isopropyl benzene but the adsorption coefficients and reaction rates were considerably lower. Figures for product analysis, adsorption coefficients and reaction rates are given. The higher rates for isopropyl benzene are considered to be due to the introduction of a methyl group into the alpha position. At higher temperatures there is a considerable increase in conversion; in the 580 to 600°C range at rates of 800 to 1000 ml/litre catalyst/hour, yield of styrene

Card 3/4

Dehydrogenation kinetics ...

S/595/60/000/000/010/014
E075/E435

and methylstyrene reached 70 to 83%, which is near to equilibrium. This is of considerable practical interest. Increase of feed rate towards 1400 to 2000 ml/litre catalyst/hour led to a slow decrease in yield. At these higher temperatures the reaction rate plot changes but the plot of Log K against the reciprocal of the absolute temperature still falls on a straight line of a different slope. The activation energies become 18.8 and 19.5 Kcals for isopropyl and ethyl benzene respectively. ✓

[Abstractor's note: Steam adsorption was neglected in all reaction rate calculations.] The dehydrogenation of ethyl cyclohexane was investigated. The low rate of reaction shows that in the absence of conjugation, the dehydrogenation of the side chain is slowed down. There are 5 figures, 4 tables and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc. The reference to an English language publication reads as follows: Ref.4: Gilliland E.K. Chem. Eng. News. 23, 129 (1945).

Card 4/4

S/020/60/132/02/27/067
B011/B002

5.3200

AUTHORS: Bogdanova, O. K., Balandin, A. A., Academician, Belomestnykh, I. P.TITLE: Catalytic Dehydrogenation of Isopropyl Benzene

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 2, pp. 343-345

TEXT: The authors investigated the reaction kinetics and the influence of the structure of the carbon molecule on the reaction rate of the catalytic dehydrogenation of isopropyl benzene. The experiments were conducted according to the continuous method on a mixed-oxide catalyst (Ref. 3). The substance used for dilution was water vapor (weight proportion of 1:2). Before the reaction, the water vapor was overheated to 300°. The contents of CO₂, unsaturated and saturated hydrocarbon and hydrogen were determined in the gas obtained after the reaction. The catalysate was colorless. A far-reaching agreement was observed between the amount of liberated hydrogen and the developing α -methylstyrene (Table 1). For 30 min a mixture of air and water vapor was blown through the catalyst after each experiment, and thus the activity of the catalyst was maintained. The kinetics of the above reaction was investigated at 500°-550° with a passage of 0.42 ml within 3 min. The latter corresponded to a volume

Card 1/3

Catalytic Dehydrogenation of Isopropyl Benzene

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S/020/60/132/02/27/067
B011/B002

velocity of 800 ml per 1 l of the catalyst per 1 h. The reaction rate was determined from the amount of the liberated hydrogen. The contact gas mainly consists of hydrogen with 0.5% to 2.0% of CO₂, and contains up to 0.4% of unsaturated, but no saturated hydrocarbons (Table 1). The constants of the reaction rate were calculated from the obtained data according to Ref. 7 on the basis of equation (1) in such a way that they can be used under the conditions of a continuous system. The authors also investigated the rate of dehydrogenation of binary mixtures of isopropyl benzene with α -methyl styrene and hydrogen. From the results they determined the relative adsorption coefficients (z_2 and z_3) of the reaction products. For this purpose they used the formula given by Ref. 8. Table 2 shows the values of these coefficients. Hence z_2 of α -methyl styrene is reduced from 3.8 at 520° to 0.95 at 550°. As regards hydrogen however, the value of z_3 does not change with the temperature and is 0.7. Fig. 1 shows the logarithmic dependence of the reaction rate constants on the absolute reciprocal temperature. The points form a straight line. The Arrhenius equation is observed. The activation energy is 30.3 kcal/mole and the pre-exponential factor $\lg k_0 = 6.25$. The authors found out that the grain size of the catalyst (1.5, 3, and 5 mm) is of no effect on the process. The dependence of the yield of α -methyl styrene on the temperature of the catalyst with various grain sizes

Card 2/3

Catalytic Dehydrogenation of Isopropyl Benzene

60.42

S/020/60/132/02/27/067
B011/B002

is illustrated by Fig. 2. The points of these two dependences are lying on the same curve. Hence the authors concluded that their experiments took place within the kinetic range. From z_2 and z_3 the changes of the liberated energy ΔF , the heat content ΔH and the entropy ΔS were calculated in the adsorption displacement from the active centers of dehydrogenation. The degree of the dehydrogenation of isopropyl benzene increases with rising temperature. At 580° and 607° , the yield in α -methyl styrene attains 70.5% and 83%, respectively (Table 1). G. M. Marukyan is mentioned. There are 2 figures, 2 tables, and 8 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: February 8, 1960

Card 3/3

*BOGDANOVA, O. K.*S/020/60/133/03/07/013
B016/B068AUTHORS: Balandin, A. A., Academician, Bogdanova, O. K.,
Shcheglova, A. P.TITLE: Catalytic Dehydrogenation of CyclohexanolPERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 3,
pp. 578 - 580


TEXT: It was shown by the authors in earlier publications (Ref. 1) that several aliphatic alcohols can be dehydrogenated over a mixed oxide catalyst without any noticeable formation of by-products due to decomposition and dehydration. They showed in this publication that the same catalyst may be also used to dehydrogenate cyclohexanol. This method of preparing cyclohexanone is being used in the production of synthetic fibers in which cyclohexanone is applied as a good solvent. According to Ye. V. Tur, S. A. Anisimov, and M. S. Platonov (Ref. 2), the cyclohexanone yield is up to 25.3% over finely disperse rhenium at 350°C. Benzene, cyclohexane, and other compounds form as by-products. The cyclohexanone yield over a nickel-aluminum catalyst according to

Card 1/3

Catalytic Dehydrogenation of Cyclohexanol S/020/60/133/03/07/013
B016/B068

Zelinskiy and Komarevskiy is about 37% at 380°C, with larger amounts (about 48%) of benzene, and, in addition, phenol, cyclohexene, and polymer products being formed. Moreover, the authors give data obtained by German and Japanese researchers. They studied the kinetics of the mentioned reaction, and determined the relative absorption coefficients, the reaction rate constants together with the activation energies (Table 3), the changes in free energy, heat content, and the entropies found for the adsorptive displacement of the alcohol molecules from the active dehydrogenation centers by cyclohexanone (Table 2). Finally, the authors established the conditions of dehydrogenation which secure high yields of cyclohexanone. The continuous method was applied for these experiments. They were carried out in an apparatus described previously (Ref. 8) and over a similar oxide catalyst sample. The conversion degree of alcohol in cyclohexanone varies between 16 and 75.8% of theory (Table 1). The results of further experiments carried out with binary cyclohexanol - cyclohexanone mixtures (containing 24.6 mole % of the latter) are shown in Table 2. From these results, it follows that the relative adsorption coefficient of cyclohexanol is 3.03 at 281°C, and drops to 0.91, if the temperature is raised to 336°. A logarithmic

Card 2/3



Catalytic Dehydrogenation of Cyclohexanol

S/020/60/133/03/07/013
B016/B068

dependence holds between the adsorption coefficient and reciprocal temperature (Fig. 1). It can be seen from Table 2 that the values of the mentioned coefficients remain unaltered, if the temperature is kept constant and the rates of passage are varied. From Table 4, it can be seen that the conversion degree of alcohol increases from 67.9 to 88.2%, when the temperature is raised from 333 to 360°C and the rate of passage per hour is increased. There are 2 figures, 4 tables, and 10 references: 7 Soviet and 3 American.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo
Akademii nauk SSSR (Institute of Organic Chemistry
imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: March 18, 1960

Card 3/3

S/020/60/133/004/036/040XX
B016/B054

AUTHORS: Bogdanova, O. K., Balandin, A. A., Academician, and
Belomestnykh, I. P.

TITLE: The Effect of the Conjugation Energy on the Rate of
Catalytic Dehydrogenation of Alkyl-aromatic and Alkyl-
hexahydro-aromatic Hydrocarbons

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 4,
pp. 841-842

TEXT: The authors report on their investigations of the dehydrogenation of ethyl cyclohexane and isopropyl cyclohexane on mixed oxide catalyst. They proceeded from the results of a previous paper (Ref. 1) which showed that ethyl benzene and isopropyl benzene are well dehydrogenated on this catalyst. The rate constant of the dehydrogenation of isopropyl benzene with a ramified alkyl radical is twice that of ethyl benzene (Table 1). Apparatus and methods used for the experiment are described in the paper mentioned (Ref. 1). The amount of catalyst used was 10 ml, the temperature

Card 1/3

The Effect of the Conjugation Energy on the
Rate of Catalytic Dehydrogenation of Alkyl-
aromatic and Alkyl-hexahydro-aromatic
Hydrocarbons

S/020/60/133/004/036/040XX
B016/B054

was 550 - 600°C, the volume velocity of the hydrocarbon was 1000 ml/l · h (equal to a rate of travel of 0.5 ml per 3 min). After every experiment, the catalyst was blown through with vapor - air mixture and with air. Cyclohexane was also used for the experiments; it can, however, not be dehydrogenated under the above conditions. The dehydrogenation of ethyl cyclohexane at 550° was poor (1% of vinyl cyclohexane was formed); the same applies to isopropyl cyclohexane (2% of isopropylidene cyclohexane). At 600°C, these yields were 3.8, and 6.7% respectively. At 600°C, methane, ethane, and unsaturated hydrocarbons were formed by cracking. The authors conclude from their results that the rate of catalytic dehydrogenation depends on the structure of the hydrocarbons used, on that of their alkyl radicals, and mainly on the possibility of formation of a conjugate bond with the aromatic ring. The dehydrogenation of the alkyl group of the hexahydro-aromatic ring is rendered difficult. There are 1 table and 7 references: 5 Soviet, 1 British, and 1 German. ✓

Card 2/3

The Effect of the Conjugation Energy on the
Rate of Catalytic Dehydrogenation of Alkyl-
aromatic and Alkyl-hexahydro-aromatic
Hydrocarbons

S/020/60/133/004/036/040XX
B016/B054

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo
Akademii nauk SSSR (Institute of Organic Chemistry imeni
N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: April 13, 1960

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Card 3/3

S/020/60/133/006/007/016
B016/B060

AUTHORS: Shcheglova, A. P., Bogdanova, O. K., Balandin, A. A.,
Academician

TITLE: The Problem of Dehydrogenating Butane⁷ - Butylene⁷ Mixtures
on an Aluminum Chromium Catalyst⁷

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 6,
pp. 1350-1353

TEXT: The present investigation was carried out in 1950. The catalyst was supplied by M. N. Marushkin (Ref. 6). The authors wanted to collect data concerning the kinetics and mechanism of the dehydrogenation⁷ mentioned in the title. The dehydrogenation rates of butane and its binary mixtures with butylene (Table 2), butadiene, and hydrogen (Table 3) were measured under optimum conditions. Since butylene and butadiene are decomposed on this catalyst, the authors measured the reaction rates in binary mixtures of these hydrocarbons with ethane in order to determine the degree of decomposition. In fact, ethane occupies,

Card 1/3

The Problem of Dehydrogenating Butane -
Butylene Mixtures on an Aluminum Chromium
Catalyst

S/020/60/133/006/007/016
B016/B060

on the active surface, a part equal to butane, but is neither dehydrogenated nor decomposed. Figs. 1 and 2 show the decomposition of butylene and butadiene, respectively, as dependent on temperature. Experimental results confirmed the assumption previously put forward by the authors, according to which coal and resins result from the dehydrogenation mentioned in the title, due to the decomposition of butylene and, even more, butadiene (Table 3). The authors state in conclusion that the following reactions take place: 1) dehydrogenation of butane to butylene; its rate is inhibited by the butylene that is present in the initial mixture; 2) dehydrogenation of butane and butylene to butadiene; 3) decomposition of butane; 4) decomposition of butylene into light hydrocarbons and coal; 5) decomposition of butadiene into light hydrocarbons, coal, and condensation products. Butadiene develops in low yields at atmospheric pressure. The catalyst is soon polluted with coal and requires frequent regeneration. A more selective dehydrogenation of butane to butylene can be attained (Refs. 1,6) at lower temperatures. Less light hydrocarbons and coal are thus formed. ✓

Card 2/3

The Problem of Dehydrogenating Butane -
Butylene Mixtures on an Aluminum Chromium
Catalyst

S/020/60/133/006/007/016
B016/B060

The authors draw the conclusion that the catalyst used is specific for the dehydrogenation of saturated hydrocarbons (butane). There are 2 figures, 4 tables, and 6 Soviet references.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo
Akademii nauk SSSR (Institute of Organic Chemistry imeni
N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: March 26, 1960

Card 3/3

BOGDANOVA, O.K.; BALANDIN, A.A.; SHCHEGLOVA, A.P.

Regularities in the catalytic dehydrogenation of primary and
secondary alcohols. Izv.AN SSSR Otd.khim.nauk no.3:425-429 Mr
'61. (MIRA 14:4)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Dehydrogenation) (Alcohols)

KOROTKEVICH, B.S.; SHENDRIK, M.N.; BOGDANOVA, O.K.; SHCHEGLOVA, A.P.;
VINOGRADOVA, N.P.

Catalytic dehydrogenation of ethylbenzene. Khim.prom. no.4:243-248
Ap '61. (MIRA 14:4)

(Benzene)

(Dehydrogenation)

BOGDANOVA, O.K.; SHCHEGLOVA, A.P.; BALANDIN, A.A.; VOZNESENSKAYA, I.I.

Catalytic dehydrogenation of n-pentenes. Izv.AN SSSR Otd.khim.
nauk no.4:578-582 Ap '61. (MIRA 14:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Pentene) (Dehydrogenation)

BOGDANOVA, O.K.; SHCHEGLOVA, A.P.; BALANDIN, A.A.; BELOMESTNYKH, I.P.

Catalytic dehydrogenation of ethyl benzene into styrene.
Neftekhimiia 1 no.2:195-200 Mr-Apr '61. (MIRA 15:2)

1. Institut organicheskoy khimii AN SSSR im. N.D. Zelinskogo.
(Benzene) (Styrene)
(Dehydrogenation)

BALANDIN, A.A., akademik; BOGDANOVA, O.K.; BELOMESTNYKH, I.P.

Kinetics of the dehydrogenation of ethyl benzene to styrene. Dokl.
AN SSSR 138 no.3:595-597 My '61. (MIRA 14:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Dehydrogenation) (Benzene) (Styrene)

53300

25313

S/020/61/138/005/013/025
B103/B215

AUTHORS: Bogdanova, O. K., Balandin, A. A., Academician, and
Belomestnykh, I. P.

TITLE: Effect of the structure of alkyl-aromatic hydrocarbons on
the kinetics of their dehydrogenation

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 138, no. 5, 1961, 1089-1092

TEXT: The authors explain the effect of the introduction of a second radical into the benzene ring of ethyl toluene on the dehydrogenation rate of the ethyl radical. They had already proved (Ref. 1: DAN, 132, No. 2, 343 (1960); Ref. 2: DAN, 138, No. 3 (1961)) that isopropyl benzene (ramified radical) is dehydrogenated faster than ethyl benzene (straight chain). The experiments were conducted in the apparatus of Ref. 1 by the same methods. The reaction rate was bromometrically determined by the method of G. D. Gal'pern (Ref. 3: Tr. Inst. nefti, 4, 141 (1954)) according to the amount of vinyl toluene produced. The catalyzate was also chromatographically analyzed. A mixture of dinonyl-didecyl sebacates (Neozone D content 2 %) 18 % of which was applied to diatomite bricks

Card 1/4

Effect of the structure of... 25313

S/020/61/138/005/013/025
B103/B215

served as liquid phase. The temperature was 524-560°C, the flow rate 1000 ml/1·hr (0.5 ml per 3 min) diluted with H₂O vapor, in the ratio of 1:16 or 1:32. The experiment proceeded far from equilibrium. The amount of by-products (xylene, toluene) in the catalyzate was low. The contact gas contained only 0.2-0.4% of olefins and 0.5-0.9 % of saturated hydrocarbons. The relative adsorption coefficients were determined by measuring the rate of dehydrogenation of ethyl toluene - vinyl toluene (21 moles of vinyl toluene) mixtures. The coefficients z_2 of vinyl toluene drop from 3.8 at 530°C to 1.5 at 560°C. The function $\log z_2 = F(1/T)$ is linear. The coefficient $z_3 = 0.7$ for hydrogen does not change with temperature. The above kinetic results may be expressed by the general kinetic equation for monomolecular reactions in the continuous system (A. A. Balandin, Ref. 7: ZhOKh, 12, 160 (1942)). The dependence of the logarithm of the velocity constant on the reciprocal absolute temperature is also linear. The Arrhenius equation is observed. The energy of activation calculated from these constants is 34.6 kcal/mole and $\log k_0 = 7.3$. On the basis of the adsorption coefficients determined for vinyl toluene on the active surface

Card 2/4

Effect of the structure of... 25313

S/020/61/138/005/013/025
B103/B215

of the catalyst, the authors calculated the changes in free energy, of enthalpy and entropy during the adsorptive displacement from the catalytic surface. The velocity constant of ethyl toluene dehydrogenation (0.731-1.704) at 530-560°C is higher than that of ethyl benzene (0.376-1.055). Hence, the authors conclude that the dehydrogenation of the ethyl radical is accelerated by introducing a methyl radical into the benzene ring. Since vinyl toluene is an important raw material for the production of synthetic rubber (copolymer production), perfumes, etc., the authors studied its dehydrogenation on a mixed oxide catalyst at 580°C and flow rates of 1000, 820, and 570 ml/l·hr. The experiments showed that the vinyl toluene yield (with respect to the flow of ethyl toluene) increased from 42.8 to 56.8 % as the velocity of flow decreases. Since the yields calculated with respect to decomposed ethyl toluene drop from 86.1 to 80.7 %, the authors assume the formation of by-products. Chromatographical studies showed that the amount of toluene increased from 0.6 to 1.4 % (at 570 ml/l·hr) and that of xylene from 4.3 to 10.8 %. 0.1 % of benzene was also formed. The authors therefore conclude that high yields of vinyl toluene are obtainable at 580°C and a high flow rate of ethyl toluene on the oxide catalyst. A. V. Bondarenko is mentioned.

Card 3/4

Effect of the structure of... ²⁵³¹³

S/020/61/138/005/013/025
B103/B215

There are 3 figures, 4 tables, and 9 references: 6 Soviet-bloc and 3 non-Soviet-bloc. The two references to English-language publications read as follows: T. W. Evans (Ref. 8: J. Chem. Education, 32, 6 (1955); F. G. Buege, (Ref. 9: Ind. and Eng. Chem., 46, 1695 (1954)).

SUBMITTED: February 28, 1961

Card 4/4

S/204/62/002/004/002/019
E071/E433

AUTHORS: Bogdanova, O.K., Shcheglova, A.P., Balandin, A.A.

TITLE: Catalytic dehydrogenation of the individual isopentenes
into isoprene

PERIODICAL: Neftekhimiya, v.2, no.4, 1962, 442-447

TEXT: Kinetics of dehydrogenation of isomeric isopentenes into isoprene on an oxide catalyst in the temperature range 560 to 620°C at a volume velocity of about 5 h⁻¹ and dilution with steam in a wt ratio of 1:3 were studied. The composition of the products was determined by the method of gas-liquid chromatography. Comparison of the obtained data indicates that an overall degree of transformation of the individual isomers in the abovementioned temperature range varies as follows: 2-methylbutene-2 (53.2 to 71.5%) > 2-methylbutene-1 (72.8 to 80.6%) > 3-methylbutene-1 (90 to 92%). From the obtained experimental data the ratio of the velocity constants of the dehydrogenation reaction for the individual isomers: 2-methylbutene-2 : 2-methylbutene-1 : 3 methylbutene-1 was found to equal 1.44 : 1.15 : 1.0. Dehydrogenation of 2-methylbutene-2 proceeds at a higher velocity

Card 1/2

Catalytic dehydrogenation ...

S/204/62/002/004/002/019
E071/E433

than that of the remaining two isomers. Isomerization of the starting hydrocarbons with a shift of the double bond occurs simultaneously with the dehydrogenation reaction. According to the degree of isomerization the isomers can be placed in the following order: 3-methylbutene-1 > 2-methylbutene-1 > 2-methylbutene-2. The most stable structure is that of 2-methylbutene-2 the least stable that of 3-methylbutene-1 with branching in the saturated part of the molecule. At 580 to 620°C, volume velocity of about 4.5 to 5.5 litre per litre of catalyst per hour and a dilution with steam in a ratio of 1:2.5 to 3 by wt, the yields of isoprene amounted to 25 to 41% on passed and 91 to 82% on reacted isopentenes. There are 3 figures and 3 tables. ✓

ASSOCIATION: Institut organicheskoy khimii AN SSSR im.
N.D.Zelinskogo (Institute of Organic Chemistry
AS USSR imeni N.D.Zelinskiy)

Card 2/2


S/204/62/002/004/005/019
E071/E433

AUTHORS: Belomestnykh, I.P., Bogdanova, O.K., Balandin, A.A.

TITLE: The influence of the structure of hydrocarbons on the kinetics of their dehydrogenation

PERIODICAL: Neftekhimiya, v.2, no.4, 1962, 467-472

TEXT: The influence of the structure of hydrocarbon molecules on the kinetics of their dehydrogenation was studied on isopropylbenzene, ethyl, ethyl-, 1-methyl-3-ethyl-, 1,4-dimethyl-2-ethyl, n.propyl- and diethylbenzenes, using the same oxide catalyst. The experiments were carried out in a straight through apparatus, with dilution of hydrocarbons with steam in a proportion of 1:2 to 3 (by wt), in the temperature range 500 to 560°C with a volume velocity of 0.8 to 1.0 hour⁻¹ (for diethylbenzene temperature range 520 to 620°C at feeding rates of 1500, 700, 500 and 300 ml per litre of catalyst per hour). The velocity of dehydrogenation was determined on the basis of the evolution of hydrogen and alkenylbenzene formed. The compositions of catalyzates were analysed by the chromatographic method. It was shown that alkylaromatic hydrocarbons with a branched radical and with substituents in the ring are dehydrogenated with a high
Card 1/2



The influence of the structure ...

S/204/62/002/004/005/019
E071/E433

velocity. From the experimental data the velocity constants of the dehydrogenation reaction were calculated for the individual hydrocarbons and the existence of the logarithmic dependence between the reaction constant and activation energy was confirmed. Changes in free energy, heat content and entropy of the adsorption displacement from active centres of the catalyst were calculated. It was shown that with the catalyst used the dehydrogenation products can be obtained with high yields at 565 to 620°C and high feeding rates: e.g. vinyltoluol can be obtained with a yield per pass of 43 to 57% (feeding rate 0.5 to 1.0 hour⁻¹), divinylbenzene with a yield per pass of 30 to 36% + 22 to 20% of ethylvinylbenzene (feeding rate 0.5 to 0.7 hour⁻¹). There are 7 figures and 3 tables. ✓

ASSOCIATION: Institut organicheskoy khimii AN SSSR
im. N.D.Zelinskogo (Institute of Organic Chemistry
AS USSR imeni N.D.Zelinskiy)

Card 2/2

BELOMESTNYKH, I. P.; BOGDANOVA, O. K.; BALANDIN, A. A.

Effect of the structure of hydrocarbons on their dehydrogenation kinetics. Neftekhimia 2 no.4:467-472 J1-Ag '62.
(MIRA 15:10)

1. Institut organicheskoy khimii AN SSSR imeni N. D. Zelinskogo.

(Hydrocarbons) (Dehydrogenation)

BOGDANOVA, O. K.; SHCHEGLOVA, A. P.; BALANDIN, A. A.

Catalytic dehydrogenation of individual isopentenes to isoprene.
Neftekhimia 2 no.4:442-447 J1-Ag '62. (MIRA 15:10)

1. Institut organicheskoy khimii AN SSSR imeni Zelinskogo.

(Butane) (Isoprene)

BOGDANOVA, O.K.; BALANDIN, A.A., akademik; BELOMESTNYKH, I.P.

Dehydrogenation kinetics of alkylaromatic hydrocarbons as
dependent on their structure. Dokl. AN SSSR 146 no.6:1327-1330
0 '62. (MIRA 15:10)
(Hydrocarbons) (Dehydrogenation)

I 17058-53
 REF(2)/EWT(F)/BDS
 10-4
 S/062/63/000/004/002/022
 Bogdanova, O. K., Balandin, A. A., and Belomestnykh, I. P.
 Regularities in the catalytic dehydrogenation of kylaromatics
 hydrocarbons
 PERIODICAL: Akademiya nauk SSSR, Izvestiya. Otdeleniye khimicheskikh nauk,
 no. 4, 1963, 611-616
 TEXT: The regularities found in studying the effect of the molecular
 structure of alkylbenzene on the kinetics of their dehydrogenation were examined.
 It was found the molecular structure of hydrocarbons regularly affects the
 rate constant, activation energy and reaction constant of dehydrogenation and
 the thermodynamic function of adsorption displacement on an oxide catalyst.
 The existence of a logarithmic relationship between the activation energy and
 the reaction constant was confirmed. A parallelism exists between the change
 of heat content and entropy during the adsorption displacement by the dehydrogena-
 tion products from the active centers of the catalyst. There are 5 figures and
 2 tables.

L 12732-63 EFF(c)/EWP(j)/EWT(m)/BDS ASD Pr-L/Pc-L RM/VW
 ACCESSION NR: AP3002283 S/0062/63/000/006/0999/1003

67
66

AUTHOR: Shcheglova, A. P.; Bogdanova, O. K.; Balandin, A. A.

TITLE: Catalytic dehydrogenation of isomeric isopentanes. Report 1. Dehydrogenation of 2-methylbutene-2

SOURCE: AN SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 6, 1963, 999-1003

TOPIC TAGS: preparation of isoprene, dehydrogenation rate of isomers

ABSTRACT: The object of this work is to study the formation rate of isoprene by individual dehydrogenation of isomeric pentanes (3-methylbutene-1, 2-methylbutene-1, and 2-methylbutene-2) which are obtained through a catalytic dehydrogenation of isopentane. The yield of isoprene, formed during the dehydrogenation of 2-methylbutene-2 using a mixed oxidizing catalyst at a flow rate of 4500 ml/l of catalyst per hour and with an increase of temperature from 560 to 620C increases from 20.5 to 41.5% of the total hydrocarbon used. Simultaneously with the dehydrogenation, the conversion of 2-methylbutene into 3-methylbutene (3.7-5%) and 2-methylbutene-1 (18.8-26.0%) takes place by means of shifting of the double bond. The composition of the isopentane isomers were determined by gas-liquid chromatography. Orig. art. has: 1 table and 3 figures.

Association: Organic Chemistry Inst., Academy of Sciences

Card 1/2

SHCHEGLOVA, A.P.; BOGDANOVA, O.K.; BALANDIN, A.A.

Catalytic dehydrogenation of isomeric isopentenes. Report No.2:
Dehydrogenation of 2-methyl-1-butene and 3-methyl-1-butene. Izv.
AN SSSR. Ser.khim. no.7:1210-1215 J1 '63. (MIRA 16:9)

1. Institut organicheskey khimii im. N.D.Zelinskogo AN SSSR.
(Butene) (Dehydrogenation)

BOGDANOVA, O.K.; BALANDIN, A.A.; BELOMESTNYKH, I.P.

Effect of the structure of alkyl aromatic hydrocarbons on the kinetics of their dehydrogenation, and the dehydrogenation of diethylbenzene. Izv. AN SSSR. Ser. khim. no.12:2100-2105 D '63. (MIRA 17:1)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

BOGDANOVA, O. Kh., Cand Biol Sci -- (diss) "Morphological and anatomical changes in some varieties of potatoes under the conditions of Central Asia." Tashkent, 1960. 19 pp; (Academy of Sciences Uzbek SSR, Inst of Botany of the Academy of Sciences Uzbek SSR); 180 copies; price not given; (KL, 26-60, 132)

PENKINA, O.M.; BOGDANOVA, O.V.

Removal of cyclopentadiene from iso-pentane in the presence
of aluminum-silicon catalysts. Khim. prom. 42 no.9.658-660
S '65. (MIRA 18:9)

L 10775-66 EWT(m)/I/EWP(J) WE/RM
ACC NR: AP6000454

SOURCE CODE: UR/0064/65/000/009/0018/0020

AUTHOR: Penkina, O. M.; Bogdanova, O. V.

ORG: None

TITLE: Removal of cyclopentadiene impurities from isopentane in the presence of alumina-silica catalysts

SOURCE: Khimicheskaya promyshlennost', no. 9, 1965, 18-20

TOPIC TAGS: cyclopentadiene, isopentane, alumina, silica, industrial catalyst

ABSTRACT: The possibility of using alumina-silica catalysts for the removal of cyclopentadiene impurities from isopentane⁷ was studied on an isopentane distillate containing 98.3 wt. % isopentane, 0.03 wt. % cyclopentadiene, and 0.0003 wt. % sulfur compounds if subjected to preliminary hydrofining, and 98.8 wt. % isopentane, 0.086 wt. % cyclopentadiene, and 0.0032 wt. % sulfur compounds if not subjected to hydrofining.// The effect of temperature, feed space velocity of isopentane, and sulfur compounds on the degree of removal of cyclopentadiene was studied in the 20-300C range. About 200C was found to be the optimum temperature, and 0.5-1.5 hr⁻¹ was the optimum space velocity. At high temperatures (above 300C), the poisoning effect of sulfur compounds was found to deactivate the catalyst.

UDC: 661.715.25:66.067.85.069.84:547.514.72

Card 1/2

L 10775-66

ACC NR: AP6000454

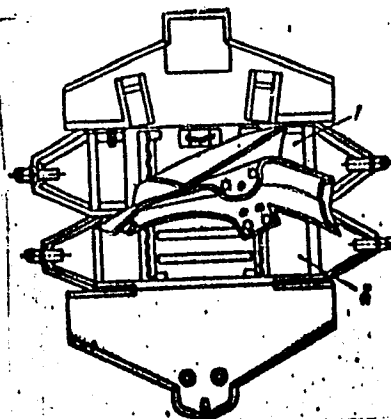
catalyst almost completely. After three regeneration cycles, the catalyst yielded the same results as when it was fresh; i.e., its activity was completely regenerated from one cycle to the next. The method of removal of cyclopentadiene from isopentane was carried out on a pilot-plant scale, and the final cyclopentadiene content of isopentane was 0.0002--0.0003 wt. %. Orig. art. has: 4 tables.

SUB CODE: 07 / SUBM DATE: *none*

CC
Card 2/2

ACC NR: AP7005688 (A) SOURCE CODE: UR/0413/67/000/002/0159/0159
INVENTOR: Bogdanova, R. A.; Kalabukhova, L. N.; Rudevskaya, S. I.; Petrichenko, A. A.
ORG: None
TITLE: A parachute pack cover. Class 62, No. 190798
SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 159
TOPIC TAGS: parachute, auxiliary aircraft equipment
ABSTRACT: This Author's Certificate introduces a parachute pack cover which contains two compartments with four valves in each. The enclosure is designed for safety in teaching parachutists to activate the auxiliary chute during abnormal operation of the main chute, and also for use in multistage parachute systems. The unit incorporates parallel arrangement of the two compartments on a common base, each compartment having its own opening mechanism.
2.
T
Card 1/2 UDC: 629.13.01/06

ACC NR. AP7005688



1--upper compartment; 2--lower compartment

SUB CODE: 01/ SUBM DATE: 09Dec65

Cord 2/2

AGALETSKIY, P.N.; BARASH, V. Ya.; BOGDANOVA, S.A.; NIKULINA, Zh.P.

Developing a standard accelerometer. Izv.tekh. no.7:12-17 J1 '61.
(MIRA 14:6)

(Accelerometers)

VANTUSHIN, B.F.; BELOZERSKIY, A.N.; BOGDANOVA, S.L.

Comparative study of the nucleotide composition of ribonucleic
and desoxyribonucleic acids in some fungi and myxomycetes. Dokl.
AN SSSR 134 no.5:1222-1225 0 '60. (MIRA 13:9)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
2. Chlen-korrespondent AN SSSR (for Belozerskiy).
(FUNGI) (NUCLEOTIDES) (MYXOMYCETES)

KHESIN, R.P.; SHEMYAKIN, M.F.; GORLENKO, Zh.M.; BOGDANGVA, S.L.; APANAS'YEVA, T.P.

RNA-polymerase in Escherichia coli B cells infected with T2 phage.
Bikkhimlia 27 no.6:1092-1105 N-D '62. (EIRA 17:5)

1. Institut atomnoy energii imeni I.V.Kurchatova, Moskva.

TIMOFEYEVA, G.A., kand.med.nauk; BOGDANOVA, S.M.; DANILOVA, V.A.;
LYUSTIGMAN, Ye.D.

Etiology and clinical aspects of gastrointestinal diseases in
children, especially infants. Sov. med. 25 no.2:42-46 F '62.

(MIRA 15:3)

1. Iz kafedry infektsionnykh zabolevaniy u detey (zav. kafedry -
dotsent A.T. Kuz'micheva) Leningradskogo pediatricheskogo meditsinskogo instituta (dir. - kand.med.nauk Ye.P. Semenova) i detskoy infektsionnoy bol'nitsy Sverdlovskogo rayona (glavnyy vrach -
zasluzhennyy vrach RSFSR N.A. Nikitina).

(GASTROENTEROLOGY)

TIMOFEEVA, G.A., kand.med.nauk; BOGDANOVA, S.M.

Clinical laboratory characteristics of Salmonella infections
in children. Vop.okh.mat.i det. 8 no.3:40-46 Mr '63.

(MIRA 16:5)

1. Iz kafedry infektsionnykh zabolevaniy u detey (zav. - prof.
A.T. Kuz'micheva) Leningradskogo pediatricheskogo meditsinskogo
instituta i Vasileostrovskoy detskoy infektsionnoy bol'nitsy
(glavnyy vrach - zasluzhennyy vrach RSFSR N.A. Nikitina).
(SALMONELLA INFECTIONS)

BOGDANOVA, S.P.

Fixing chrome dyes in a reducing ager. Obm. opyt. [MLP] no.9:17-18
'56. (MIRA 11:10)

(Dyes and dyeing--Chemistry)

BOGDANOVA, S.P.

Device making easier steaming operations. Obm. tekhn. opyt. [MLP]
no.9:18-20 '56. (MIRA 11:10)
(Textile finishing--Equipment and supplies)

LAPINSKAYA, T.A.; BOGDANOVA, S.V.; ZHURAVLEV, Ye.G.

Petrography and tectonic features of the crystal basement in the
Volga-Ural oil- and gas-bearing region. Trudy MINKHIGP no.43:
280-297 '63. (MIRA 17:4)

BOGDANOVA, S.V.

Monazite from Pre-Cambrian rocks in the Volga-Ural region. Dokl. AN SSSR
154 no.6:1344-1346 F '64. (MIRA 17:2)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti im.
I.M.Gubkina. Predstavleno akademikom D.S.Korzhinskim.

BOGDANOVA, S.V.

Geology and petrography of Pre-Cambrian sediments in the area of
the Mukhanovo oil and gas field (Kuybyshev Province). Trudy MINKHIGP
no.27:237-248 '60. (MIRA 13:9)
(Mukhanovo region--Petrology)

ORECHKIN, D.B., OVSIYANIKOV, L.F., BOGDANOVA, T.A.

Destructive hydrogenation of total liquid-phase petroleum
hydrogenates on fixed bed on fixed bed catalysts. Trudy
Vost.-Sib.fl.AN SSSR no.26: 71-85 '59. (MIRA 13:6)
(Petroleum products) (Hydrogenation) (Catalysts)

BOGDANOVA, T.A.

3

33602

S/678/61/000/038/001/009

A057/A126

11.0160

AUTHORS: Kalechits, I.V., Pavlova, K.A., Kaliberdo, L.M., Skvortsova, G.O., Bogdanova, T.A., Sidorov, R.I., Trotsenko, Z.P.

TITLE: On the chemism of transformations of bi-cyclic hydrocarbons under conditions of destructive hydrogenation

PERIODICAL: Akademiya nauk SSSR. Vostochno-Sibirskiy filial. Trudy. Seriya khimicheskaya, no. 38, Moscow, 1961. Prevrashcheniya aromatichekikh uglevodorodov v protsesse destruktivnoy gidrogenizatsii., 31 - 57

TEXT: Laboratory experiments on destructive hydrogenation of naphthalene, tetralin, and decalin were carried out under semi-industrial conditions in presence of industrial catalysts. The composition of the products obtained was classified, 17 single hydrocarbons were separated, and 11 more determined by spectrum analysis. It is shown that transformations of bi-cyclic hydrocarbons occur in the presence of tungsten catalysts and in vapor-phase processes preferably by consecutive hydrogenation isomerization, and final splitting. The transformations observed are explained by the carbenium-ionic mechanism.

Card 1/3

33602

S/678/61/000/038/001/009

A057/A126

On the chemism of

ory, and schemes for transformations of bi-cyclic hydrocarbons in vapor- and liquid-phase processes presented. In the present paper a discussion is presented of the problem of transformations of polycyclic hydrocarbons with a review of appropriate literature data. Among the problems to be solved is the question, whether a direct splitting of the ring is possible in hydrocarbons of the tetralin, tetrahydroanthracene, etc. type, or whether isomerization occurs before and which bonds and by what reasons are most easily split. This and related problems were investigated before. Experiments were carried out too, with a powdered Fe-semicoke catalyst at 470°C, 450 atm, 3 h and 10% catalyst. The products obtained were separated by fractional distillation, and the remainder chromatographically treated over silica gel [types MCM (MSM), or KCM (KSM)]. After separating methane-naphthenic and aromatic fractions, narrow cuts were prepared by fractional distillation. The cuts were specified by n_D^{20} and d_4^{20} values, and some also by Raman spectra [taken on an MСП-51 (ISP-51) spectrograph]. The amount of cyclohexane and homologues, and of bicyclic hydrocarbons containing hexamethylene rings were determined by D.D. Zelinskiy's method of dehydrogenation catalysis. The content of paraffinic and monocyclic naphthenic hydrocarbons was determined by means of specific refraction R_D and molecular

Card 2/3

33602

S/678/61/000/038/001/009

A057/A126

On the chemism of

weight and nomograms. In fractions boiling above 144°C, the R_p value decreased, thus indicating the presence of bi-cyclic naphthenes. The authors assumed for these fractions that 1) only a mixture of paraffinic and bicyclic naphthenes is present, or 2) only mono-, and bicyclic naphthenes. A principal difference in the transformation mechanism of bicyclic hydrocarbons between liquid- and vapor-phase conditions can be seen by comparing the types of hydrocarbon groups in the hydrogenation products. Completely different occurs the vapor-phase hydrogenation in presence of tungsten catalysts. The isomerization process is much more intensive (twice as many products) than in liquid-phase hydrogenation, or without catalyst. The present experimental data, as well as those obtained in prior investigations (with other catalysts) can be explained by assuming the ionic mechanism. A partial occurrence of a radical mechanism is not excluded. There are 6 figures and 10 tables. ✓

Card 3/3

BOGDANOVA, T.A.; MORZHEY, V.V.; KALECHITS, I.V.

Mutual transformations of stereoisomeric 1,3-dimethylcyclopentanes
in analytical dehydrogenation. Dokl. AN SSSR 159 no.2:361-364
N '64. (MIRA 17:12)

1. Predstavleno akademikom B.A. Kazanskim.

Сидорова, Т.А.; Сидоров, Р.И.

Individual composition of the paraffin-isothene fraction
of hydrogenation products of bicyclic hydrocarbons boiling
up to 200°C. Zhur.VKO 10 no.4:479-480 1965.

(MIP: 98:11)

1. Institut nefte i gazobinshechnogo promysla pri Leningon
gosudarstvenom universitete 1 no 5:1. Moskva.

BOGDANOVA, T.F.

Dependence of the spring wheat crop on precipitation in the
central nonchernozem zone. Meteor. i gidrol. no.7:46-48
Jl '65. (MIRA 18:6)

1. TSentral'nyy institut prognozov.

BOGDANOVA, T.F.

Agroclimatic indexes of the productivity of spring wheat in various levels of agricultural technology in the steppe and forest-steppe zones of the European territory of the R.S.F.S.R. Trudy TSIP no.140: 59-70 '65. (MIRA 18:7)

BOGDANOVA, T. I.

Nerves of the Popliteal Artery and Vein." Sub 15 Sep 47, First Moscow
Order of Lenin Medical Inst

Dissertations presented for degrees in science and engineering in
Moscow in 1947

SO: Sum No. 457, 18 Apr 55

BOGDANOVA, T.I.

Some practical considerations on Bielschowsky-Gross impregnation,
Biul. eksp. biol. med. 47 no.1:122-123 Ja '59. (MIRA 12:3)

1. Iz laboratorii anatomii nervnoy sistemy (zav. - prof. S.B. Drugayeva)
Instituta mozga (dir. - deystvitel'nyy chlen AMN SSS S.A. Sarkisov)
AMN SSSR, Moskva. Predstavlena deystvitel'nyy chlenom AMN SSS^d V.N.
Chernigovskim.

(NERVES, PERIPHERAL, anat. & histol.

Bielschowsky-Gross stain. (Rus))

(STAINS AND STAINING

Bielschowsky-Gross method (Rus))

BOGDANOVA, T.I. [Bohdanova, T.I.]

Fine injection of cerebral blood vessels in man and animals.

Dop.AN URSR no.4:531-533 '61.

(MIRA 14:6)

1. Moskovskiy meditsinskiy stomatologicheskiy institut Predstavleno
akademikom AN USSR V. G. Kas'yanenko [Kas'ianenko, V. H.].

(BRAIN—BLOOD SUPPLY)

(INJECTIONS, ANATOMICAL)

BOGDANOVA, T.I. [Bohdanova, T. I.]

New method for preparing arthrological specimens for research and educational purposes. Dop.AN URSSR no.6:819-821 '61.

(MIRA 14:6)

1. Moskovskiy meditsinskiy stomatologicheskiy institut.
Predstavleno akademikom AN USSR V.G. Kas'yanenko [Kas'ianenko, V.H.].
(CONNECTIVE TISSUES)

(ANATOMICAL SPECIMENS--COLLECTION AND PRESERVATION)

BOGDANOVA, T.I., assistant

Simultaneous compound identification of the neurovasuclar systems
and structures of individual tissues and organs with silver nitrate.
Teor. i prak.stom. no.6:162-164 '03.

Fixation of cadaver material without the use of formalin. Ibid.:165
(MIRA 18:3)

1. Iz kafedry normal'noy anatomii (zav. - prof. N.V.Kolesnikov)
Moskovskogo meditsinskogo stomatologicheskogo instituta.

BOGDANOVA, T.L. [Bohdanova, T.L.]

Possible control of algae by chemical means; preliminary
report. Visnyk Kyiv. no.5. Ser. biol. no.1:10-13 '62.
(ALGAE) (AQUATIC WEED CONTROL) (MIRA 16:5)

L 23845-65 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(b) PP-4 MJW/JD/HW

ACCESSION NR: AR5000588

S/0137/64/000/008/D039/D039

SOURCE: *Ref. zh. Metallurgiya. S. t., Abs. 8D229*

AUTHOR: Rudoy, V. S.; Mlinarich, B. A.; Borodanova, T. M. *B*

TITLE: The possibility of rolling pipes of chromium-nickel-manganese steel

CITED SOURCE: Sb. Proiz-vo trub, vy* p. 12. M., Metallurgiya, 1964, 10-14

TOPIC TAGS: chromium-nickel-manganese steel, pipe, hot rolling, broaching/ steel EP278, steel EI835

TRANSLATION: An investigation was made of the special industrial characteristics of hot working of two chromium-nickel-manganese steels containing nitrogen and boron - steels EP278 and EI835, both of which differ basically in their silicon and manganese content. Test rolling of billets with square and circular cross sections on a mill with barrel rollers made it possible to construct a power diagram for each case of rolling. Results of hot torsion tests were

Cord 3/2 * *[Broaching probably means "piercing"]*

L 23845-65

ACCESSION NR: AR5000583

confirmed in testing steel EP278 for broachability* by rolling tapered samples on a laboratory roller broaching* mill. Broaching* on a 140 automatic roller broaching mill showed that heating of billets made of steel EP278 reaches 130-140° with a reduction in drawing of 1.75-2.00. It was established by the investigation that the mechanical properties of steels EP278 and EI835 at room temperature are characterized by a combination of high values for indices of strength, ductility, and impact resistance. Both steels are characterized by a lowering of the yield point with an increase in hot working temperature accompanied by a relatively small change in tensile strength. The low ductility of steel EP278 in the hot state does not permit it to be used for rolling pipes of satisfactory quality on a 140 automatic installation. To produce pipes of this steel other hot working processes must be applied which assure a more favorable system of the state of stress in low ductility metal: pressing, rolling on a pilger mill, etc. The somewhat better industrial properties of steel EI835 provide a basis for considering that pipes can be made from it on a 140 automatic installation. K. Ursova.

SUB CODE: MM

ENCL: 00

Card 2/2

L 20601-66 EWT(n)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k) JD/HW

ACC NR: AP6010136

SOURCE CODE: UR/0133/66/000/C93/0248/0250

AUTHOR: Rudoy, V. S. (Candidate of technical sciences); Alferova, N. S. (Doctor of technical sciences); Mlinarich, B. A. (Engineer); Bogdanova, T. M. (Engineer); Sadokov, G. M. (Engineer); Mel'nichenko, I. F. (Engineer); Kirvalidze, N. S. (Engineer); Kurilenko, V. Kh. (Engineer); Onishchenko, M. P. (Engineer)

ORG: none

TITLE: Production of tubes from OKh20N5T stainless steel

SOURCE: Stal', no. 3, 1966, 248-250

TOPIC TAGS: stainless steel, low nickel steel, stainless steel tube, tube rolling, hot rolling / OKh20N5T steel, EP299 steel

ABSTRACT: Technological properties of EP299 (OKh20N5T) stainless steel and the conditions for tube rolling this steel have been studied. The steel, annealed at 1050C for 15 min and air cooled, has a tensile strength of 101 kg/mm², a yield strength of 34 kg/mm², an elongation of 40.6%, and a reduction of area of 62.1%. Corresponding figures for test temperature at 350C are 52 kg/mm², 39.0% and 69.7%. The steel is very sensitive to the cooling rate: slow cooling sharply reduces the elongation and impact strength. The plasticity of EP299 steel does not change in the 1100—1250C range, but increases sharply with further increases in temperature and rapidly increasing content of α-phase. Up to 1250C the plasticity of EP299 steel is much

Card 1/2

UDC: 621.744.35

L 20601-66

ACC NR: AP6010136

lower, but at 1275C and over much higher, than that of Kh18N10T and EI-811 steels. The hot working of EP299 steel must be done at temperatures over 1250C. The steel, however, has a tendency to stick to guide bars. With guide bars made from G18 steel (1.4—1.8% C, 16—19% Mn) and piercing done at 1275—1300C, the tendency to stick was greatly reduced. The mechanical properties and surface quality of hot-rolled and heat-treated EP299 tubes were satisfactory, and the tubes were suitable for cold rolling and cold drawing. Orig. art. has: 2 figures. [AZ]

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 003/ ATD PRESS: 4/225

Card

2/213K

BOGDANOVA, T. N.

BOGDANOVA, T. N. A laboratory manual for physics courses 3. perer. i dop.
1st., Moskva, Sovetskaia nauka, 1949- (51-20077)

QC37.B65

BOGDANOVA, Taisiya Nikitichna; Prinsipala uchastiye KORENEVA, N.K.;
MOROZOVA, I.I., red.; ZARSHCHIKOVA, L.N., tekhn. red.

[Polymer film materials for the packaging of food products]
Plenochnye polimernye materialy dlia upakovki pishchevykh
produktov; spravochnoe posobie. Moskva, Pishchepromizdat,
1963. 150 p. (MIRA 16:8)
(Plastics) (Food--Packaging)

1. BOGDANOVA, T. N. and SUBBOTINA, Ye. P.
2. USSR (600)
4. Physics and Mathematics
7. Guide to Practical Occupations in Physics, T. N. Bogdanova, and Ye. P. Subbotina. (Mostov, Soviet Science".) Reviewed by I. A. Yakovlev, Sov. Kniga, No. 9, 1951.

9. Report U-3081, 16, Jan. 1953. Unclassified.

BOGDANOVA, T. N.

"The Study of the Heterohemagglutination Properties of Human Blood."
Cand Med Sci, Rostov State Medical Inst, Makhachkala, 1954. (KL, No 8,
Feb 55)

SO: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical
Dissertation Defended at USSR Higher Educational Institutions.
(14)

BOGDANOVA, T.N., kand.med.nauk

Use of hydrolysin in the treatment of dysentery in children. Akt.
vop.perel.krovi no.7:314-316 '59. (MIRA 13:1)

1. Dagestanskaya stantsiya perelivaniya krovi.
(BLOOD PLASMA SYBSTITUTES) (DYSENTERY)

BOGDANOVA, T.N.

Pelecypods of the Valangin in the Kopet-Dag and their stratigraphic
distribution. Trudy VSEGEI 46:126-150 '61. (MIRA 14:11)
(Kopet-Dag--Lamellibranchiata, Fossil)

SIRENKO, L.A.; BOGDANOVA, T.L. [Bohdanova, T.L.]

Stimulating the development of *Anabaena variabilis* culture by
the use of physiologically active substances. *Visnyk Kyiv.un.*
no.5. Ser.biol. no.2:7-9 '62. (MIRA 16:5)
(ALGAE—CULTURES AND CULTURE MEDIA)
(GROWTH PROMOTING SUBSTANCES)

BOGDANOVA, T.P., mladshiy nauchnyy sotrudnik

Ozone as an agent for ridding water of bacterial spores. Gig. 1

san. no. 10:96-98 0 '60.

(MIRA 13:12)

(WATER--BACTERIOLOGY) (OZONE)

BOYARINOVA, B.A.; BOGDANOVA, T.S.

Testing of the effectiveness of the diphtheria-pertussis-
tetanus vaccine in a limited children's contingent. Trudy
Irk. NIIM no. 7:248-254 '62 (MIRA 19:1)

EXCERPTA MEDICA Sec 14 Vol 13/4 Radiology Apr 59

754. THE IMPORTANCE OF CONTRAST X-RAY STUDY OF THE TEMPORAL BONE IN CHOLESTEATOMA (Russian text) - Bogdanova T. V. Moscow - VESTN. OTO-RINO-LARING. 1958, 20/3 (40-44) illus. 2

Contrast roentgenography of cavities of the middle ear with a 40% solution of sergosine enables one to judge the patency of the antral entrance, as well as to assess to what degree the cavity, at the mastoid process, is free of granulations and epidermal accumulations. The possibility of performing roentgenography in any projection is achieved by filling the auditory canal with paraffin. Results of 62 examinations are presented. (XIV, 19*)

BOGDANOVA, T. V., Cand Med Sci -- (diss) "On the problem of cholesteatoma of the middle ear." Mos, 1958. 17 pp (Min of Health RSFSR, Mos Med Stomatological Inst), 200 copies (KL, 17-58, 111)

- 75 -

BOGDANOVA, T.V., kand.med.nauk

Observations on the immediate results of treating laryngeal cancer
with dipine. Zhur. ush., nos.1 gorl. bol. 21 no.3:38-41 My-Je '61.
(MIRA 14:6)

1. Iz klinicheskogo otdela Natsionalno-issledovatel'skogo instituta
ukha, gorla i nosa Ministerstva zdravookhraneniya RSFSR.
(LARYNX—CANCER) (PIPERAZINE)

BOGDANOVA, T.V.; RADUGIN, K.B.

Use of tympanoplasty in chronic suppurative otitis media.
Trudy gos. nauch.-issl. inst. ukha, gorla i nosa no.11:212-222
'59. (MIRA 15:6)

1. Iz klinicheskogo otdeleniya Gosudarstvennogo nauchno-
issledovatel'skogo instituta ukha, gorla i nosa.
(EAR--DISEASES)

(TYMPANAL ORGAN--SURGERY)

BOGDANOVA, V.

Daily variation in the color of meteors. Izv. AN Turk. SSR no. 2: 92-93 '51.
(MLR 6:8)

1. Fiziko-tekhnicheskii institut Turkmenskogo filiala Akademii nauk SSSR.
(Meteors)

BOGDANOVA, V.A.

Chemical composition of petrolatum obtained from the Karachukhur-Sarakhang petroleum. *Izv.vys.ucheb.zav.*; *neft' i gaz* 1 no.9:73-78
' 58. (MIRA 11:12)

1. Groznenskiy neftyanov institut.
(Apsheon Peninsula--Hydrocarbons--Analysis)

D'YACHKOV, Ivan Ivanovich; BOGDANOVA, T.Ya., red.; NAGIBIN, P.A.,
tekh. red.

[Hero of the winged guards] Bogatyr' krylatoi gvardii; doku-
mental'nyi ocherk. Alma-Ata, Kazakhskoe gos. izd-vo,
1962. 116 p. (MIRA 16:4)
(Pavlov, Ivan Fomich, 1907-1950)

CA 111

Processes and Properties Index

Evaluation of the antiscorbutic activity of some food products. N. S. Yarnova, V. A. Bogdanova and M. Ya. Efimova. *Voprosy Pitaniya* 7, No. 4-5, 36-44 (1938); *Ahim. Referat. Zhur.* 2, No. 5, 52 (1939); cf. C. A. 32, (350).—The investigation included vitamin preps., products enriched with vitamin C, canned vegetables, fruit and berry juices, jams, compotes and pure preps. of vitamin C. The "man-dose" varied within the following limits: concentrate of hipberry 0.6-2.0 g., hipberry tablet (0.5-3.4 g., hipberry liquet 0.6-1.1 g., marmalade 12.3-20.8 g., plum jam 11.5-61.0 g., sugar plums 8.6-22.0 g. Tomato paste (38-130 g.), tomato puree and tomato catsup (105-520 g.) were poor sources of vitamin C. The "man-dose" of different juices varied between 46 and 143 cc. The antiscorbutic activities of different jams, compotes and preserves are also given. Most preserves (except compote made out of medlar whose "man-dose" was 97-117 g.) contained no vitamin C. A vitamin C prep. showed the usual activity for pure preps. of 0.5-1 mg.

W. R. Henn

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCEDURES AND PROPERTIES INDEX																			
CA										17									
<p>- Vitamin C in hiphberries, their products, vitaminized preparations and in preparations from conifer needles. N. R. Shchepirskaya, V. A. Romashova and M. Ya. Rimova. <i>Voprosy Pitanija</i> 8, No. 8, 66-77(1939); cf. C. A. 33, 5460¹.—Dets. of vitamin C (I) were made by bio. assay and by titration. Both methods gave identical results. The I content of hiphberries varies widely from sample to sample. The I potency can be better preserved in whole berries than in powders. In various com. hiphberry exts., tablets, confections, jams, pastry, etc., the I content was adequate in fresh products. Ext. from the needles of a Siberian cedar (name not given) contained 1 human dose per 1.6-2.3 g. and per 2.4 g. of tablets made from these exts. T. Laanes</p>																			
ASB-31A METALLURGICAL LITERATURE CLASSIFICATION																			
FROM SYMBOLIC										EXTENSION									
SYMBOLS										SYMBOLS									

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
PROCESSING AND PROPERTY NOTES																										PROCESSING AND PROPERTY NOTES																									
CA																										12																									
<p>Influence of storage on vitamin C content of frozen strawberries. V. A. Bogdanova. <i>Vopr. Pitanii</i> 9, No. 3, 20-24 (1940). The vitamin C content of strawberries when freshly frozen with 50 wt.-% of sugar was approx. 50 mg.-% and after storing 9 months at -18° there was no appreciable loss in antiscorbutic potency. Color, odor and flavor were also retained. J. F. S.</p>																																																			
<p>ASS-51A METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100																									
1ST AND 2ND CODES																									
PROCESSING AND PROPERTIES INDEX																									
<p>CA</p> <p>12</p> <p>Frozen black currants as a source of vitamin C. V. A. Bogdanova and N. N. Shepilevskaya. <i>Voprosy Pitaniya</i> 9, No. 3, 35-40 (1940).—Black currants frozen with 30 wt.-% sugar still contained at least 1000 biol. units of vitamin C per kg. after storing them 3.5 months at -18°. After 10 months of storage there was no appreciable loss. Julian F. Smith</p>																									
<p>ASH-15A METALLURGICAL LITERATURE CLASSIFICATION</p> <p>15000 15100 15200 15300 15400 15500 15600 15700 15800 15900 16000 16100 16200 16300 16400 16500 16600 16700 16800 16900 17000 17100 17200 17300 17400 17500 17600 17700 17800 17900 18000 18100 18200 18300 18400 18500 18600 18700 18800 18900 19000 19100 19200 19300 19400 19500 19600 19700 19800 19900 20000 20100 20200 20300 20400 20500 20600 20700 20800 20900 21000 21100 21200 21300 21400 21500 21600 21700 21800 21900 22000 22100 22200 22300 22400 22500 22600 22700 22800 22900 23000 23100 23200 23300 23400 23500 23600 23700 23800 23900 24000 24100 24200 24300 24400 24500 24600 24700 24800 24900 25000 25100 25200 25300 25400 25500 25600 25700 25800 25900 26000 26100 26200 26300 26400 26500 26600 26700 26800 26900 27000 27100 27200 27300 27400 27500 27600 27700 27800 27900 28000 28100 28200 28300 28400 28500 28600 28700 28800 28900 29000 29100 29200 29300 29400 29500 29600 29700 29800 29900 30000 30100 30200 30300 30400 30500 30600 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PROCEDURES AND PROPERTIES INDEX																									
<p>CA</p> <p>11E</p> <p>C-vitamin activity of human milk. V. A. Bogdanova. <i>Pediatrics</i> 1946, No. 1, 23-7.—It was noted THAT human milk shows a low content of vitamin C in the 1st 8 months of a year; hence it is advised that feeding of at least 100 mg. ascorbic acid per day to the lactating women be used to bring up the level to proper intake for the infants. G. M. Kowlopoff</p>																									
<p>ASD-51A METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>SECTION 1: METALLURGY</p>													<p>SECTION 2: METALLURGY</p>												
<p>SECTION 1: METALLURGY</p>													<p>SECTION 2: METALLURGY</p>												

CA

1/E

Seasonal fluctuations in the vitamin C content of human milk. V. A. Bogdanova. (*Hygiene i Sanit.* 12, No. 1, 28-35(1947); *Chem. Zvest.* (Russian Zone Ed.) 1948, II, 1208; cf. C.A. 40, 7326).—Extensive clinical studies showed that the vitamin C content of human milk was low almost all the year with the exception of September and October. Administration of 100 mg. of vitamin C daily to lactating women for 25-30 days increased the vitamin C content of the milk to 4-8 mg. % and more. Doses of 200-300 mg. daily (5-10 days) were necessary to produce a rapid increase in the vitamin content of the milk. The level could then be maintained with 100 mg. daily. M. G. M.

BOGDANOV, V. A.

USSR/Medicine-Vitamin C, Determination of Oct 48
Medicine-Titration, Method

Use of Potentiometric Titration for Determining
Vitamin C, V. A. Bogdanova, State Vitamin Con-
trol Sta, Min of Pub Health USSR, 3 1/2 pp

"Sig 1 Ser" No 10

Claims accuracy of a potentiometric determination
of Vitamin C in urine, human milk, and in solu-
tions of synthetic ascorbic acid in 1% hydro-
chloric acid (approximately 0.3 N) lies within
the limits of accuracy of the visual method. Con-
centrated hydrochloric acid, 0.3 - 2.5 N (i.e.,
1 - 9%, is a good stabilizer for ascorbic acid,

49/49786

USSR/Medicine-Vitamin C, Determination of Oct 48
(Contd)

when the latter is a 4 mg % concentrate. Potentio-
metric method cannot be recommended for general
mass analyses. Gives three tables of titration
tests.

49/49786

COMMON ELEMENTS		PROCESSES AND PROPERTIES INDEX	
11a		11a	
<p>Relations between nutrient and energy-supplying metabolic processes in heterotrophic bacteria. 1. <i>Bacterium formicum</i>. A. Ya. Mantefel, V. Bordanova, and I. Chetverikova. <i>Mikrobiologiya</i> 18, 118-27 (1949).—In anaerobic fermentation of $HCOOH$ (mainly to CH_4 and $C(=)$ by <i>B. formicum</i> (1), in presence of Ca formate. I grows well in presence of $(NH_4)_2SO_4$, phosphates, thiamine, and biotin, utilizing $HCOOH$ both as nutrient and as energy source. The optimum pH for growth is 7.5. Cultures at initial pH 4.7 and 5.7 did not grow; starting at 6.3-7.3, little or no $AcOH$ was formed. Alk. cultures (initial pH up to 8.0) formed enough $AcOH$ to reach pH 7.5.</p> <p>Julian F. Smith</p>			
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION			
ESON: STVIBIVA		ESON: BOMIV	
ESON: STVIBIVA		ESON: BOMIV	

✓ **Comparison of some methods for the determination of ascorbic acid in cow milk after its boiling and pasteurization**

V. A. Bogdanova and V. M. Selivanov

Vitamin Institute, Moscow, *Voprosy Pitanija*, 1966, 42, 5-1066.

For the determination of ascorbic acid in cow milk after its boiling and pasteurization, we will compare the results of the following methods:

1. The method of Selivanov and Bogdanova (1966).

2. The method of Selivanov and Bogdanova (1966).

3. The method of Selivanov and Bogdanova (1966).

4. The method of Selivanov and Bogdanova (1966).

5. The method of Selivanov and Bogdanova (1966).

6. The method of Selivanov and Bogdanova (1966).

7. The method of Selivanov and Bogdanova (1966).

8. The method of Selivanov and Bogdanova (1966).

9. The method of Selivanov and Bogdanova (1966).

10. The method of Selivanov and Bogdanova (1966).

11. The method of Selivanov and Bogdanova (1966).

12. The method of Selivanov and Bogdanova (1966).

13. The method of Selivanov and Bogdanova (1966).

14. The method of Selivanov and Bogdanova (1966).

15. The method of Selivanov and Bogdanova (1966).

16. The method of Selivanov and Bogdanova (1966).

17. The method of Selivanov and Bogdanova (1966).

18. The method of Selivanov and Bogdanova (1966).

19. The method of Selivanov and Bogdanova (1966).

20. The method of Selivanov and Bogdanova (1966).

21. The method of Selivanov and Bogdanova (1966).

22. The method of Selivanov and Bogdanova (1966).

23. The method of Selivanov and Bogdanova (1966).

24. The method of Selivanov and Bogdanova (1966).

25. The method of Selivanov and Bogdanova (1966).

26. The method of Selivanov and Bogdanova (1966).

27. The method of Selivanov and Bogdanova (1966).

28. The method of Selivanov and Bogdanova (1966).

29. The method of Selivanov and Bogdanova (1966).

30. The method of Selivanov and Bogdanova (1966).

31. The method of Selivanov and Bogdanova (1966).

32. The method of Selivanov and Bogdanova (1966).

33. The method of Selivanov and Bogdanova (1966).

34. The method of Selivanov and Bogdanova (1966).

35. The method of Selivanov and Bogdanova (1966).

36. The method of Selivanov and Bogdanova (1966).

37. The method of Selivanov and Bogdanova (1966).

38. The method of Selivanov and Bogdanova (1966).

39. The method of Selivanov and Bogdanova (1966).

40. The method of Selivanov and Bogdanova (1966).

41. The method of Selivanov and Bogdanova (1966).

42. The method of Selivanov and Bogdanova (1966).

43. The method of Selivanov and Bogdanova (1966).

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BOGDANOVA, V.A., kandidat biologicheskikh nauk.,; ILYUTOVICH, G.Ye.,
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Advice from "Zdorov'e". Zdorov'e 2 no.3:29-30 Mr '56 (MIRA 9:6)

(MILK, HUMAN) (CRAMPS) (FUNGI--THERAPEUTIC USE)

BOGDANOVA, V.A.; SMLIVANOVA, V.M.

Enrichment of cow milk and of kefir with ascorbic acid in children's institutions. *Pediatrics* 39 no.6:66-68 N-D '56. (MLRA 10:2)

1. Iz otdela vitamina C Instituta vitaminologii Ministerstva zdoravookhraneniya SSSR (dir. - prof. B.A.Lavrov)

(MILK,

vitamin C enrichment of milk & kefir for child. nutrition (Rus))

(VITAMIN C,

enrichment of milk & kefir for child nutrition (Rus))

T-2

USSR/Human and Animal Physiology - Metabolism.

Abstr Jour : Ref Zhur - Biol., No 7, 1958, 31434

Author : Bogdanova, V.A., Selivanova, V.M.

Inst : - ON LAST PAGE -

Title : The Relationship Between Daily Dose of Ascorbic Acid in a Ration to Children and the Level of Its Excretion in Morning Urine on an Empty Stomach.

Orig Pub : Vopr. pitaniya, 1957, 16, No 3, 28-31

Abstract : By means of the N.S. Zheleznyakovaya method (Gig, i sanit., 1951, No 12, 41-45) observations were conducted on Children and teenagers 3-16 years which showed that the excretion of vitamin C in urine on an empty stomach indicates its content in the daily food ration. Thus, with a content of 20 mg of ascorbic acid (AA), in the ration, its excretion in urine comprised 0.14-0.19 mg in one hour; with the content of 26-75 mg of AA in the food ration, its excretion in urine increased to 0.19-0.39 mg in 1 hour.

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